Rosewill

ULTRA ATA/133 PCI RAID Card **RC200**

User Manual

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Features and Benefits

- Silicon Image Sil 0680
- Compliant with UltraDMA6 ATA/133 specifications
- Compliant with PCI v2.2 Plug-n-Play
- Provides two independent Ultra ATA channels
- Full ACPI power management support
- Supports Ultra DMA 0-6 and Multi-word DMA 0-2
- Supports hard drives larger than 137GB
- Supports RAID 0(Striping), RAID1(Mirroring) and RAID 0+1 (Mirror+Striping)
- CRC(Cyclical Redundancy Check) error-checking provides data verification and achieves flawless data transfer
- Achieves burst data transfer rates up to 133MB/sec
- Works with various brand of Ultra ATA 133/100/66/33 hard disk drives

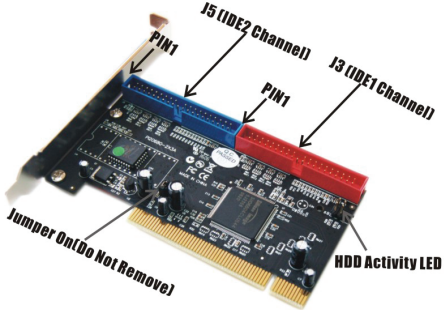
System Requirements

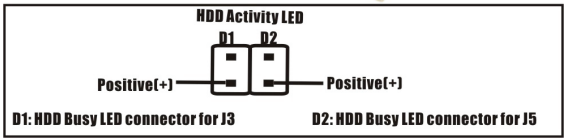
- Pentium-class computer with an available PCI slot
- Windows® 98SE/ME/NT 4.0/2000/XP/Server 2003

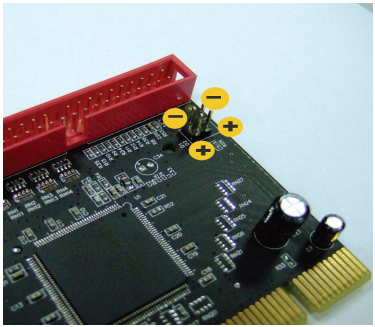
Package Contents

- UltraATA 133 PCI Adapter
- Driver CD
- User Manual
- ATA 133 IDE cable x2

Hardware Installation







Note: For proper operation of the Ultra ATA 133 PCI RAID card, the jumper must remain on.

1. Turn Off the power to your computer and any other connected peripheral devices.
2. Unplug the power cord from the back of the computer.
3. Remove your computer's cover.
4. Remove the slot bracket from an available PCI slot.
5. To install the card, carefully align the card's bus connector with the selected PCI slot on the motherboard. Push the board down firmly, but gently, until it is well seated.
6. Replace the slot bracket's holding screw to secure the card.

Device Connection

The UltraATA 133 RAID PCI is a dual channel Ultra ATA/133 controller that support up to for IDE hard disk drives. To achieve maximum performance and compatibility we suggest using identical hard drives in building your RAID sets.

In any given RAID set, it's best to install the hard drives on separate channels, either Master to Master or Slave to Slave. For example, if you are setting up a RAID set with two hard drives, install the first drive on **IDE1** as Master and the second on **IDE2** as Master. Use the same concept for multiple hard drives.

Note: Only the 40-pin/80-wire UltraATA cable can achieve hard disk UDMA 133 performance. When attaching only two hard drives it is recommended that they be connected on separate IDE channels.

In order to achieve high-speed data transfer, a 40-pin/80-wire Ultra ATA ribbon cable is recommended. Also, do not mix Ultra ATA/133 hard disk with slow IDE or ATAPI devices on the same channel.

1. If you plan to install two hard disk drives on the **IDE1** channel, make sure to configure one drive as Master and the drive as Slave. Follow the hard drive manufacturer's instructions for the correct jumper setting. The same rule must be followed for connecting hard disk drives to the **IDE2** channel.
2. Attach on end of the Ultra ATA cable to the **IDE1** connector on the board. Make sure pin 1 on the cable (indicated by the stripe) matches pin 1 on the IDE1 connector.
3. Install the hard disk drive to your computer. Attach the end connector of the Ultra ATA cable to the end connector on the hard disk drive. Make certain that pin 1 on the cable(indicated by the stripe) matches pin 1 on the hard disk drive's connector to IDE2

   Note: The ribbon cable has two connectors. If you have one hard disk drive, connect it to the end connector of cable. If you have a second hard disk drive, connect it to the middle connector of cable.

4. Reconnect the system power and other peripherals to your computer.

Important message for user

1. Backup all your data in HD before setting any RAID.
2. New HD connecting to RC-200 is recommended to “initial” and “format” before setting a RAID. Otherwise, PC might find nothing in the system.
3. Please read the PDF file of “SATARAID5-UserGuide_v1.40” for basic RAID knowledge.
4. If you want to boot from correct HD either from motherboard HD or RC-200 HD, please change from BIOS “booting sequence”.（You can download this document from Rosewill website.）
5. If you want to use RC-200 as a un-RAID card, please do not enter the RAID BIOS and set any RAID set at the beginning of booting. You can jump to P13 directly to complete the driver installation. The only different is ignoring the step of RAID setting and the driver setting is the same as a RAID card.

RAID Arrays

RAID Arrays are setup in the UltraATA 133 RAID PCI Card’s BIOS. Find your RAID set and follow the steps in the order in which they appear.

RAID 0 (Striping)

This RAID array to be used on **New/Blank** hard drives. Striping will destroy existing data on the hard drive. **Auto Configuration** is recommended. For applications that require custom chunk size, **Manual Configuration** is offered.

For Manual Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. At the next screen press **F2** to form a RAID set.
3. Press **F1** to create RAID 0.
4. Choose the chunk size to be used in the RAID set(64 is recommended).
5. Choose the number of hard drives in your stripe set.
6. Assign the hard drives to be used. For optimal performance, alternate hard drives from separate IDE channels.
7. After all hard drives are entered, press **Y** to create the RAID set.
8. Press **ESC** to exit the **RAID** BIOS and boot your computer.
9. Continue with FDISK and FORMAT steps as if you are installing a conventional hard drive.

For Auto Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. At the next screen press **F2** to form a RAID set.
3. Press **F1** to create RAID 0.
4. Press **A** for Auto Setup.
5. Enter the number of hard drives in the stripe set.
6. Press **Y** to accept the configuration.
7. Configure another RAID set or press **ESC** to reboot.
8. Continue with FDISK and FORMAT steps as if you are installing a conventional hard drive.

RAID 1 (Mirror)

For Manual Setup

For New/Blank Hard Drives

Recommended for all fresh HD without data.

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. At the next screen press **F2** to from a RAID set.
3. Press **F2** to create RAID 1. In a Mirror set the source drive needs to be equal to or smaller than the destination drive. For optimal performance the source drive and destination drive should be on separate IDE channels.
4. Answer **N** to Auto Setup.
5. Assign **Source** drive, then assign **Destination** drive.
6. Assign **N** when asked to Copy from Source to Destination.
7. Answer **Y** to Enable Auto-Rebuild.
8. When asked **Are you Sure?** Press **Y** to accept.
9. Press **ESC** to exit the RAID BIOS and boot the computer.

For Existing Hard Drives with Data

Recommended for one/two original HD with data to mirror with one/two fresh empty HD

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F2** to enter the RAID setup screen.
3. Press **F2** to from RAID set 1.
4. Answer **N** to Automatic setup.

5. Assign **Source** drive, then assign **Destination** drive.
6. Press **Y** to copy from Source to Destination drive.
7. Press **N** to Offline copy.
8. Answer **Y** to enable Auto-Rebuild.
9. When asked **Are You Sure?**, press **Y** to accept.
10. Press **ESC** to exit the RAID BIOS.

For Auto Setup

****Use this setup on New/Blank hard drives only.***

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F2** to create a RAID Set.
3. Press **F2** to create Mirror Set.
4. Press **Y** to use Auto Setup.
5. Press **Y** to accept the configuration.
6. Configure another RAID set or press **ESC** to reboot.
7. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

Creating a SPARE Drive

When a hard drive failure occurs in a mirror set, the auto-rebuild feature enables a drive designated as **SPARE** to become the new member of the mirror set.

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F3** to create a spare drive.
3. Enter the drive number of the hard drive.

4. Press **Y** to confirm your choice. The spare drive will be created and listed as the last set.
5. Press **ESC** to exit the RAID BIOS.
6. The **SPARE** drive will not be seen by Windows, however, it remains in the background waiting to rebuild the mirror in the event of a hard drive failure.

Rebuilding a Failed Mirror Set

If a SPARE drive was not configured, the steps below will guide you in rebuilding a failed mirror set.

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F1** to dissolve an Array.
3. Press the number of the Mirrored array to be dissolved.
4. Press **Y** to confirm. Be sure you delete the correct Array.
5. Press **ESC** to exit the RAID BIOS, then immediately turn off the computer.
6. Replace the bad drive with a new hard drive of equal or greater size, then restart the computer.
7. During boot press **F3** to enter the RAID BIOS.
8. Press **F2** to create an Array.
9. Press **F2** to create a Mirrored Array.
10. Answer **N** for automatic setup.
11. Enter the number of the **Source (good)** drive.
12. Enter the number of the **Destination (new)** drive.
13. Answer **Y** to copy from Source to Destination drive.
14. Answer **N** to decline Offline Copy.

15. Answer **Y** to enable Auto-rebuild.
16. When asked **Are You Sure?**, Press **Y** to accept.
17. Press **ESC** to exit the RAID BIOS and reboot the computer.

RAID 0+1 (Mirror+Striping)

This RAID array to be used on **New/Blank** hard drives only, striping destroys existing data on the hard drive. RAID 0+1 requires at least four hard drives.

For Manual Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. At the next screen press **F2** to from a RAID set.
3. Press **F3** to create RAID 0+1.
4. Choose the chunk size by pressing the appropriate number key(64 is recommended).
5. Enter the first Source drive, then enter the second source drive.
6. **Note:** To optimize performance, configure both source drives to be from different channels and configure both destination drives to be from different channels.
7. Enter the first destination drive, then enter the second destination drive.
8. Enter **Y** to accept the RAID configuration.
9. On the following screen press **ESC** to exit the RAID configuration utility and reboot the computer.
10. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

For Auto Setup

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F2** to create a RAID set.
3. Press **F3** to create a Mirrored-Striped set.
4. Press **A** to Auto configure.
5. Press **Y** to accept the configuration.
6. Press **ESC** to reboot.
7. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

Rebuilding a Failed RAID 0+1 Set

The steps below will guide you in rebuilding a failed Mirror-Stripe set.

1. Replace the failed drive with one of identical size or of large capacity.

   Note: It is recommended to replace the bad drive with an identical drive, or with a drive of the same make. In all cases, the replacement drive must be of equal or larger capacity then the bad drive.

2. Start the computer and during boot press **F3**, when prompted, to enter the RAID BIOS.
3. Press **F3** to assign a **Spare** drive.
4. Press the number corresponding to the new drive.
5. When asked **Are You Sure?**, Press **Y** to accept.
6. Press **ESC** to exit the RAID BIOS and reboot the computer.
7. Continue with FDISK and FORMAT steps as if you were installing a conventional hard drive.

Deleting RAID Arrays

1. As the BIOS boots press **F3** when prompted to enter the RAID BIOS.
2. Press **F1** to dissolve a RAID set.
3. Enter the number of the RAID set to be deleted.
4. Answer **Y** to remove the RAID set.
5. Press **ESC** when finished to reboot.

Resolving Conflicts

If after a disk failure, the replacement disk was previously part of a RAID set (or used in another system), it may have conflicting metadata, specifically in reference to the drive connection information. If so, this will prohibit the RAID set from being either created or rebuilt, in order for the RAID set to function properly, this old metadata must be first overwritten with the new metadata. To resolve this, press **F4**, the correct metadata, including the correct drive connection information, will be written to the replacement disk.

Driver Installation

Quick guide:

1. If you want to add RC-200 to an existing OS, set up RC-2090 into a PCI slot. Enter the OS and install RC-200 with driver disk. In this case, PC is booting up by an existing HD connecting to motherboard. After RC-200 is installed complete, you can add HD and set the RAID by RAID BIOS.
2. If you want to add RC-200 to a new PC without any OS, you need to boot the OS from

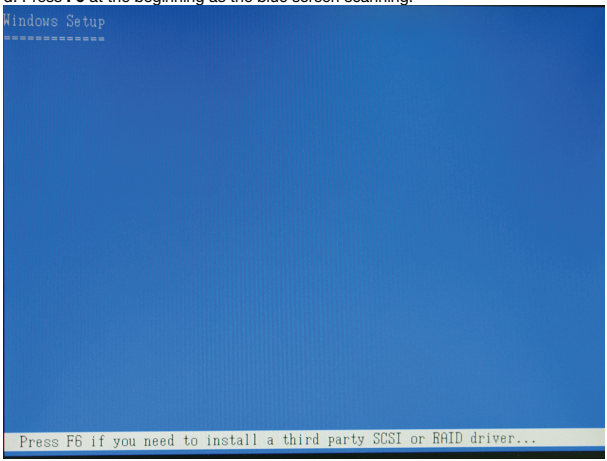
HD connecting to RC-200 instead of motherboard. Please follow below steps a~f to complete the installation.

a. Put the driver (the driver must fit the OS you want to install to the HD) into a floppy disk and keep it in the floppy drive.

b. Plug the HD. Turn on PC and press **F3** to complete the RAID set. After you complete, save and left the setting.

c. Inset Windows installation disk and start the windows installation.

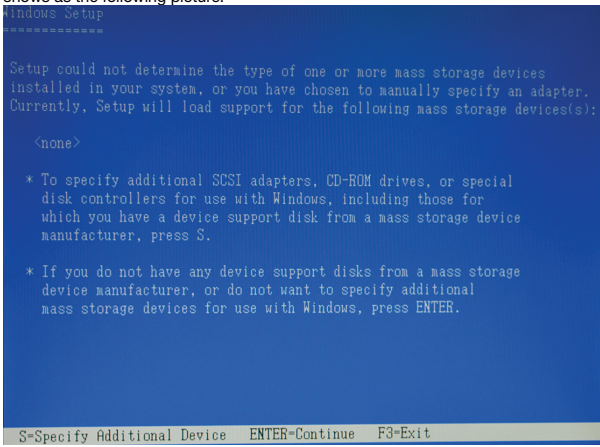
d. Press **F6** at the beginning as the blue screen scanning.



This will let PC boot from a HD controller instead of motherboard HD.

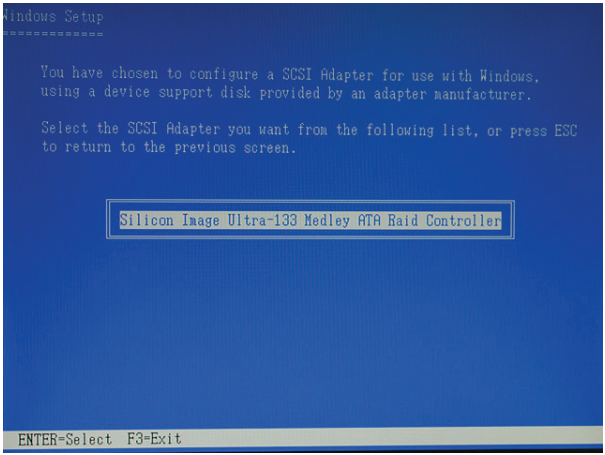
e. Keep the floppy in floppy drive and follow the installation. Press "**S**" when the screen

shows as the following picture.

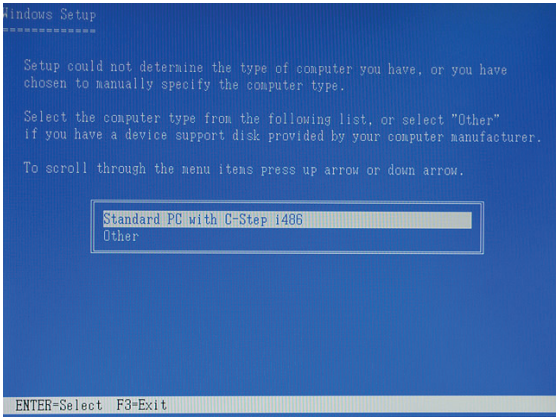


C

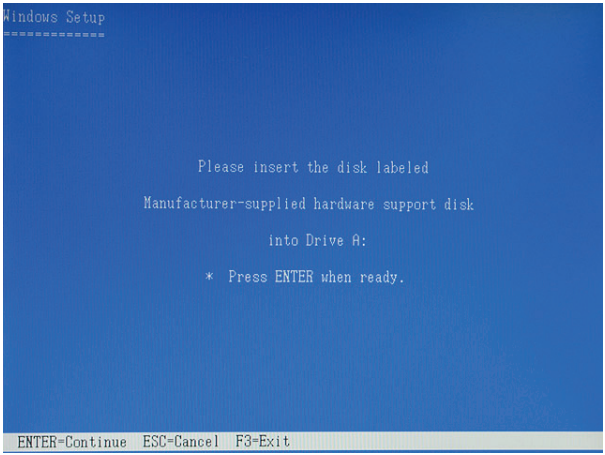
Choose the correct OS for your future system.



If below screen happens, please choose "**Standard PC with C-Step i486**".

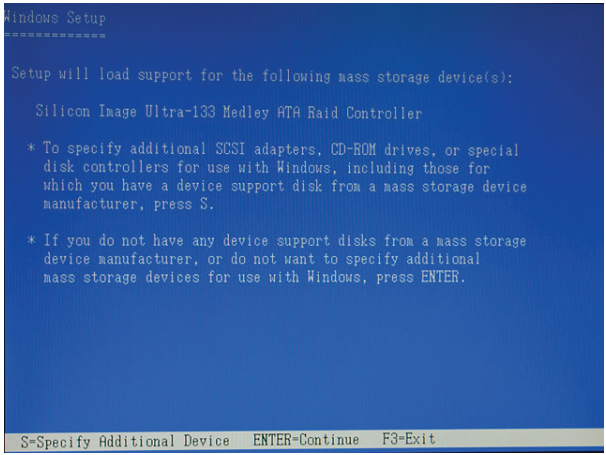


Keep the floppy disk in floppy drive. PC will notice you as below if you take it off from the drive.



The installation of RC-200 by floppy drive will be completed and the system will detect the HD which now plug on the card.

After you install RC-200 successfully by floppy disk, installation will lead you back to the same screen as below and then press "**enter**" to left the setting.



f. Once the system can find the HD connecting to RC-200, you can follow the normal steps to complete the Windows installation.

3. If you want to create a mirror with a HD with existing OS and a fresh HD, the data on existing HD will copy to fresh HD and boot as RAID 1. In addition, based on the above situation, if a bootable HD on the RC200 is desired. It means in this case you will boot our computer from RC200 instead of motherboard. Please follow the following instructions. a~d to complete the installation.

   a. Install RC-200 to an existing OS HD connecting to motherboard.

   b. After RC-200 install complete, turn off PC. Take the original HD off from motherboard and connect to RC-200. Take another fresh HD to connect to RC-200

for setting mirror.

c. Turn on PC and enter RAID BIOS to set mirror. Choose "**Manual**" and then select the original HD as the data source to complete mirror. The copy will take a long time depending on your HD capability. After data copy complete, save and left RAID BIOS.

Important message: If you choose the wrong HD source at the step of "manual", all your data will be lost.

d. Reboot your PC and now you can enter your OS with RAID 1. (Please change the booting sequence in CMOS if necessary)

Detail guide:

For Windows® 98 SE

****For New Windows® 98SE Installation***

Setup the RAID Array prior to Windows installation.

1. Install the board and follow Microsoft procedures to install Windows® 98 SE accordingly.
2. Once Windows has been installed, right click **My Computer** and click **Properties.** Select **Device Manager** tab.
3. Double click PCI RAID Controller listed under Other Devices.
4. Select **Driver** tab, then click **Update Driver** button.
5. Insert the driver CD into the CD-ROM Drive and click **Next**.
6. Select **Search for the best driver for your device(Recommended)** from the following dialog box and type

7. **D:\RC-200\raid (Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **Next**.
8. Click **Next** again, then **Finish**.
9. Restart Windows to complete driver installation.

For Existing Windows® 98SE Installation

1. Setup the RAID Array prior to driver installation.
2. Install the board and boot up Windows® 98SE.
3. At the Add New Hardware Wizard, click **Next.**
4. Select Search for the best driver for your device and click **Next**.
5. Insert the driver CD into the CD-ROM Drive and click **Next**.
6. Select **Search for the best driver for your device(Recommended)** from the following dialog box and type
7. **D:\RC-200\raid (Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **Next**.
8. Click **Next** again, then **Finish**.
9. Restart Windows to complete driver installation.

For Windows® ME

For New Windows® ME Installation

1. Setup the RAID Array prior to Windows installation.
2. Install the board and follow Microsoft procedures to install Windows® ME accordingly.

3. Once Windows has been installed, right click **My Computer** and click **Properties.** Select **Device Manager** tab.
4. Double click PCI RAID Controller listed under Other Devices.
5. Select **Driver** tab, then click **Update Driver** button.
6. Insert the driver CD into the CD-ROM Drive and click **Next**.
7. Select **Search for the best driver for your device(Recommended)** from the following dialog box and type
8. **D:\RC-200\raid (Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **Next**.
9. Click **Next** again, then **Finish**.
10. Restart Windows to complete driver installation.

For Existing Windows® ME Installation

1. Setup the RAID Array prior to driver installation.
2. Install the board and boot up Windows® ME.
3. At the Add New Hardware Wizard, click **Next**.
4. Select Search for the best driver for your device and click **Next.**
5. Insert the driver CD into the CD-ROM Drive and click **Next**.
6. Select **Search for the best driver for your device(Recommended)** from the following dialog box and type
7. **D:\RC-200\raid (Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **Next**.

8. Click **Next** again, then **Finish**.
9. Restart Windows to complete driver installation.

To Verify Windows® 98SE/ME Installation

1. Right-click **My Computer**, then click **Properties**, Select **Device Manager** tab.
2. Double click SCSI Controllers, Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller should be listed.
3. Highlight **Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller** and click **Properties**. A message this device is working properly is displayed in the dialog box, the driver has been correctly installed. If any error message is displayed, remove **Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller** and restart your system.

For Windows® NT 4.0

For New Windows® NT 4.0 Installation

A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the **"RC-200\raid" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.**

1. Setup the RAID Array prior to Windows® NT 4.0 installation.
2. Install the board and follow Microsoft procedures to install Windows NT 4.0 accordingly.
3. At the **Windows NT Setup** screen, press **F6** to specify and add the driver.
4. Press **S**, select **Other**, then press **Enter**.
5. Insert the driver diskette and press **Enter**.
6. Select Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller and press Enter.

7. Press **Enter** to continue and follow on-screen instructions to complete Windows NT 4.0 installation.

For Existing Windows® NT 4.0 Installation

1. Setup the RAID Array prior to driver installation.
2. Install the board and boot up Windows® NT 4.0
3. Double click My Computer/Control Panel/SCSI Adapters, then click Drivers tab.
4. Click Add… then Have Disk…
5. Insert the driver CD, type **D:\RC-200\raid (Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **OK**
6. Highlight Silicon Image Sil 0680 ultra-133 Medley ATA Raid Controller and click **OK**.
7. Click **OK**, restart Windows NT 4.0 to complete driver installation.

To Verify Windows® NT 4.0 Installation

1. Double click My Computer/Control Panel/SCSI Adapters.
2. Highlight Silicon Image Sil 0680 ultra-133 Medley ATA Raid Controller from SCSI Adapters listing and click Properties. A message this device is working properly is displayed in the dialog box, the driver has been correctly installed.

For Windows® 2000

For New Windows® 2000 Installation

A new installation requires a floppy disk for the driver installation. To make this floppy disk,

copy the contents of the **"RC-200\raid" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.**

1. Setup the RAID Array prior to Windows installation.
2. Install the board and follow Microsoft procedures to install Windows ®2000 accordingly.
3. Restart your system when prompted during Windows' installation.
4. At the **Windows 2000** screen, press **F6** to install the driver.
5. Insert the driver diskette. Press **S**, then press **Enter**.
6. Select Silicon Image Sil 0680 ultra-133 Medley ATA Raid Controller and press **Enter**.
7. Press **Enter** to continue and follow on-screen instructions to complete installation.

For Existing Windows® 2000 Installation

1. Setup the RAID Array prior to driver installation.
2. Install the board and boot up Windows® 2000.
3. At the Found New Hardware Wizard, click **Next.**
4. Select Search for a suitable driver for my device(recommended) and click **Next**.
5. Check the option **Specify a location** and then click **Next** to continue.
6. Insert the driver CD into CD ROM Drive, and they type **D:\RC-200\raid (Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **OK**.
7. Click **Next** again, then **Finish**.
8. Restart Windows to complete driver installation.

For Windows® XP/Server 2003

✱For New Windows® XP/Server 2003 Installation

A new installation requires a floppy disk for the driver installation. To make this floppy disk, copy the contents of the **"RC-200\raid" folder, found on the driver CD, onto a blank floppy disk then follow the directions below.**

1. Setup the RAID Array prior to Windows installation.
2. Install the board and follow Microsoft procedures to install Windows ®XP/Server 2003 accordingly.
3. Restart your system when prompted during Windows' installation.
4. At the **Windows XP/Server 2003** screen, press **F6** to install the driver.
5. Insert the driver diskette. Press **S**, then press **Enter**.
6. Select Silicon Image Sil 0680 ultra-133 Medley ATA Raid Controller and press Enter.
7. Press **Enter** to continue and follow on-screen instructions to complete installation.
8. When the **Software Installation** warning pops up. Click **Yes**. And when the **Hardware Installation** warning pops up, click **Yes** again.

✱For Existing Windows® XP/Server 2003 Installation

1. Setup the RAID Array prior to driver installation.
2. Install the board and boot up Windows.
3. At the Found New Hardware Wizard, click **Next.**
4. Choose "**Install** from a list or specific location(Advanced), and then click **Next** to continue.
5. Choose Search for the best driver in these location and check the option Include this location in the search.

6. Inset the driver CD into CD ROM Drive, and they type **D:\RC-200\raid (Note: "D:\"** represents the drive letter assigned to the CD-ROM drive you are using. If **D** is not letter of your CD-ROM drive, substitute **D** with the correct drive letter), then click **OK**.
7. The Hardware Installation window pops up, click Continue Anyway, the Finish.
8. Click **Next** again, then **Finish**.
9. Restart Windows to complete driver installation.

To Verify Windows® 2000/XP/Server 2003 Installation

1. Right click **My Computer** and click **Manage**.
2. Select Device Manager.
3. Double click **SCSI and RAID Controller**, then double click **Silicon Image SiI 0680 ultra-133 Medley ATA Raid Controller** to display driver properties. A message this device is working properly is displayed in the dialog box, the driver has been correctly installed.

Thank you for purchasing a quality Rosewill Product.
Please register your product at : www.rosewill.com/ for complete warranty information and future support for your product.